
RECOMMENDATION ON USABILITY STANDARDS FOR CALIFORNIA STATE WEB PAGES

**INFORMATION ORGANIZATION, USABILITY, CURRENCY,
AND ACCESSIBILITY WORKING GROUP**

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Executive Summary

The web has become a major channel for the State of California to deliver information and services to the public. The Pew Internet and American Life Project found that by April 2006, 73 percent of Americans are online¹; 29 percent of Americans are most likely to contact government through the web². Providing a web presence that allows citizens and businesses to easily access and understand government information and services is becoming increasingly critical to state government.

By providing easily accessed government information and services via the web, California offers its citizens a convenient method to quickly and efficiently perform a task, find an answer, solve a problem, or express an opinion. Poorly designed Websites lead to lost time, frustration, reduced productivity, loss of confidence, and loss of repeat visits. User-friendly Websites lead to higher customer satisfaction, lower costs associated with customer contact, increased rate of self-compliance with government regulations, and decreased error rates.

Usability enables government to identify customer needs and expectations, then to validate that those needs and expectations have been met. One method of ensuring that the state's web presence meets the needs and expectations of its users is through usability engineering and testing. Usability engineering involves a methodical approach to web page development, incorporating usability standards during development to produce a Website that works for the users. Usability testing validates that the engineering was effective by allowing developers to observe citizens or businesses using the web pages to perform tasks, helping developers identify where incorrect assumptions were made. Industry best practices suggest that web usability engineering and testing should become part of the state's institutionalized processes. Agencies and Departments should incorporate usability standards and guidelines into the development and maintenance of their sites. Standards and guidelines are needed to assist and support this effort. Also, education about usability will need to take place at various levels within the organizations.

This recommendation provides the business case for adopting the application of usability for state government web pages. The benefits of usability and the barriers to implementation are addressed.

California is currently working with a consultant to perform usability testing of California's main portal. The IOUCA will work closely with the Portal Redesign Project and the consultant as they perform the testing and recommend changes. A more detailed recommendation will be developed that incorporates the findings and recommendations of the usability testing as well as more detailed standards and guidelines to support implementation. This detailed recommendation will be submitted to the State Portal Review Board by the end of the summer.

¹ "Data Memo: Internet Penetration and Impact, April 2006". Mary Madden. Pew Internet & American Life Project. April 26, 2006.

² "How Americans Get in Touch with Government." John B. Horrigan. Pew Internet & American Life Project. May 24, 2004.

Section I – Business Case

According to Jakob Nielsen (www.useit.com), “Usability is a quality attribute that assesses how easy user interfaces are to use.”

The California Research Bureau Report, [Policy and Management Issues Framework](#), states that, “Usability has two components – engineering and testing. Usability engineering involves a methodical approach to web page development, incorporating usability standards during development to produce a website that works for the users. Usability testing validates that the engineering was effective by allowing developers to observe citizens or businesses using the web pages to perform tasks, helping developers identify where incorrect assumptions were made.”

The Information Organization, Usability, Currency, and Accessibility (IOUCA) Working Group recommends the adoption of usability standards for Website development.

Web pages should be easy to use and content understandable by the average user. The purpose of usability is to design websites that allow visitors to the site to complete a task, solve a problem, express an opinion, or find an answer to a question quickly and easily. The purpose of the website should be self-evident to the user. Poor web page design leads to wasted time, reduced productivity, increased frustration, loss of confidence, inaccuracies, and loss of repeat visits.

Important problems that usability addresses include:

- Irrelevant search engine results
- Site navigation that is inconsistent and not readily apparent to the user
- Use of program jargon, acronyms and bureaucratic language
- Content that is not written for the web
- Difficult to read web pages

Benefits of Usable Websites

According to a recent survey by the Pew Internet & American Life Project, 73 percent of American adults currently are Internet users³—and the percentage is increasing. More and more people expect to be able to conduct their business online.

It is critically important that we not only make information and services available to people online, but that we make them available in a manner that is easy to find and use.

By applying the principles of usability to our websites, we:

- Increase the likelihood that users will choose to get information and perform tasks online, which will reduce more expensive phone and office contacts
- Improve customer satisfaction and trust in government
- Reduce maintenance costs and increase effective use of staff time

³ “Data Memo: Internet Penetration and Impact, April 2006”. Mary Madden. Pew Internet & American Life Project. April 26, 2006.

Barriers to Implementation

A process needs to be developed to assist departments and agencies in implementing usability standards and guidelines to create and maintain a website that meets their customers' needs and expectations.

Usability engineering and testing are new concepts for California departments and agencies. Executive support and buy-in are essential for the institutionalization of usability principles in eGovernment. Champions at both the state and department level will be needed to ensure that website usability is accepted and to provide the necessary leadership, resources and support to move forward.

Executives and management from both the business and technology areas within agencies and departments will need to be educated about the aspects and value of usability and the new skill sets required by their web staff. Training and supporting information will be needed by webmasters and web developers to effectively apply the recommended standards and guidelines. This will require most state web staff to acquire new skills. Implementation plans should provide sufficient time for both skill mastery and implementation.

Section II - Recommended Standards and Guidelines

Standard

Apply the elements of usability to your web pages and online applications.

For the purposes of this standard, the elements of usability are:

1. Design process and evaluation

Usability-related issues, methods, and procedures require careful consideration when designing, developing, and testing websites. Use an iterative design approach; conduct user research and usability tests before, during, and after the design process. Establish clear and concise goals for the website, determine correct and exhaustive user requirements which meet user expectations, set usability goals, take usability measurements of the existing site for later comparison, and provide useful content.

2. Optimizing the user experience

Design websites to facilitate and encourage efficient and effective human-computer interactions. Reduce the user's workload by taking advantage of the computer's capabilities. Users will make the best use of websites when information is displayed in a directly usable format and content organization is highly intuitive. Users benefit from task sequences that are consistent with how they typically do their work, do not require them to remember information for more than a few seconds, have terminology that is readily understandable, and do not overload them with information.

3. Homepage design

A homepage clearly communicates the site's purpose and shows all major options available on the website. Well-constructed homepages project a good first impression to all who visit the site. Ensure that the homepage has all features expected of a homepage (e.g., identity & mission, site hierarchy, search). The majority of the homepage is visible [above the fold](#), and contains a limited amount of dense text. Good designers include easy access to the homepage from every page in the site.

4. Page layout

Well-designed web pages are structured for ease of comprehension. This includes putting items on the page in an order that reflects their relative importance. Good designers place important items consistently, usually toward the top and center of the page. All items are appropriately aligned on the pages. Ensure that pages show a moderate amount of white space—too much can require considerable scrolling, while too little may provide a display that looks too “busy.” Ensure that page layout does not falsely convey the top or bottom of the page, such that users stop scrolling prematurely.

5. Navigation

A website's navigation scheme and features should allow users to find and access information effectively and efficiently. Good designers keep navigation-only pages short, include site maps, and provide effective feedback on the user's location within the site.

Differentiate and group navigation elements, use appropriate menu types, use descriptive tab labels, and provide a clickable list of page contents on long pages. In well-designed sites, users do not get trapped in dead-end pages; the navigation provides an easy way to get back to where they came from.

6. Scrolling and paging

Designers must decide, early in the design process, whether to create long pages that require extensive scrolling or shorter pages that will require users to move frequently from page to page (an activity referred to as paging). This decision will be based on considerations of the primary users and the type of tasks being performed. For example, older users tend to scroll more slowly than younger users; therefore, long scrolling pages may slow them down considerably. As another example, some tasks that require users to remember where information is located on a page may benefit from paging, while scrolling benefits users with reading tasks. Designers can also provide navigation links that assist users in finding specific content on a long page without much scrolling.

7. Meaningful headings, titles, and labels

Most users spend a considerable amount of time scanning rather than reading information on websites. Well-designed headings help to facilitate scanning and reading of written material.

Good designers use unique and descriptive headings while using as many headings as necessary to enable users to find what they are looking for—it is usually better to use more rather than fewer readings.

8. Links

Good designers use meaningful link labels (making sure that link names are consistent with their targets), provide consistent clickability cues (avoiding misleading cues), and designate when links have been clicked.

Use text for links rather than graphics where possible. For most user groups text links provide better information about the target than graphics.

9. Text appearance

Text characteristics help ensure a website communicates effectively with users:

- a. Larger, sans serif fonts are easier to read online;
- b. Use dark text on plain, high-contrast backgrounds; and
- c. Use background colors to help users understand the grouping of related information, as long as doing so does not violate accessibility standards.

10. Graphics, images, and multimedia

Graphics are used on many, if not most, web pages. When used appropriately, graphics, video, and audio can add value to a website. Include the organization's logo and place it in a consistent place on every page. Logos can provide credibility and tell users that they have not left your site.

11. Lists

Lists are commonly found on websites. Clearly introduce lists and include a descriptive title. Format lists for easy scanning. Order items in the list based on the needs of the users.

12. Web content

Content is the most important part of a website. If the content does not provide the information needed by users, the website will provide little value no matter how easy it is to use.

When preparing prose content for a website, use familiar words and avoid the use of jargon. If acronyms and abbreviations must be used, ensure that they are clearly understood by typical users and defined on the page.

13. Search

Provide a search box or a link to a search page on every page. Ensure usable results, allow simple searches, and design search around users' terms.

14. Error handling

Error handling is the way in which the user is notified of a problem and how to resolve the error. Provide easy-to-understand error messages and explanations of methods to solve the problem.

Section III – Recommended Approaches to Implementation

Agencies and departments should identify their primary audiences through various means such as the use of web metrics, demographic information, and surveys. They should encourage user feedback to help identify their audiences. In addition, agencies and departments need to identify why people are coming to their website, and what they are trying to accomplish.

Existing Pages

Ultimately, all pages and online applications could be affected. Agencies and departments should start reviewing and revising their web pages based on criteria to be determined by the individual departments. The criteria might be:

- Most frequently visited pages
- Most politically sensitive pages
- Quick fixes (e.g., changing font style)

Future Pages

Agencies and departments should develop an ongoing process that incorporates usability engineering and testing when new content and online applications are developed. As new pages are developed, agencies and departments should solicit feedback from key users groups through information gathered from:

- Webmaster emails
- Call centers
- Surveys
- Help desks
- Focus groups

Implementation Timeframes

The timeframes for implementation are open-ended. However, agencies and departments very quickly need to develop a process that incorporates usability into the development and maintenance of web pages and applications.

Section IV – Tools for Implementation

Templates

Using templates that have been developed based on approved usability standards will ensure consistency from one web page to another within a site and throughout the state, whether these templates are provided from a centralized source such as the State CIO's office, or developed by individual agencies and departments.

The use of templates is also consistent with this working group's parallel effort to promote separation of web presentation from content.

Code Repository

The concept of code repositories addresses the larger issue of reusability of content and presentation elements, both of which facilitate implementation and enforcement of usability elements and content consistency. This would involve making online libraries of website specific terminology, content styles, headings, etc. available to content authors and editors, and having policies and procedures in place to ensure their use.

Training

Because the concept of usability is new to state government, education and training is critical for successful adoption.

- **Executives, managers, and staff** (business and technology) need to know what usability is and how it benefits their agencies and departments.
- **Content writers and reviewers** need training on how to write for the web.
- **Web page developers** need training on [information architecture](#) and how to design pages based on usability principles.
- **Web application developers** need training on usability principles as they relate specifically to application development and how to incorporate usability into the development process.

Information and training are available through various sources; online and physical classes, books, white papers, etc. Agencies and departments can also develop in-house usability experts and training.

The IOUCA will thoroughly address training needs and possible solutions in the detailed usability recommendation to be submitted later this summer.

General Resources

- <http://usability.gov/> - U.S. Department of Health and Human Services
- <http://usability.gov/pdfs/guidelines.html> - Research-Based Web Design & Usability Guidelines
- http://psychology.wichita.edu/surl/usability_news.html - Usability News, Software Usability Research Laboratory, Wichita State University
- * Eric Schaffer. The Institutionalization of Usability, 2004.

*NOTE: These titles and other resources on usability are available online to state staff through the California State Library. Look for "Safari Tech Books Online" (under E-Books) on Electronic Resources for California State Government Employees at www.library.ca.gov/csl/csldatabases.cfm. For more information, contact the State Information and Reference Center at (916) 654-0261, Monday through Friday, 9:30 a.m. to 4:00 p.m, or email: cslsirc@library.ca.gov.

Section V - Vetting Process

The IOUCA encourages departmental review by state webmasters and web developers for applicability in a real-world environment. Comments and suggestions from these reviews provide valuable input for incorporation into the recommended standards where applicable.

This recommendation for usability has been reviewed by:

- State Portal Review Board
- Department of Motor Vehicles
- State Portal Steering Committee

It is being concurrently reviewed by:

- Department of Social Services

On adoption by the State Portal Steering Committee, the recommended standards and guidelines contained within become policy for all California departments and agencies reporting to the Governor and the State Chief Information Officer.

The standards and guidelines are intended to be living documents. An open review period will follow adoption, soliciting feedback from all state departments and agencies that choose to review the draft.

Section VI - Glossary and References

Glossary

- **Above the fold** - The content on a web page that is visible without scrolling.
- **Information architecture** - The organization and categorization of online content.

Reference List*

- Research-Based Web Design and Usability Guidelines (<http://usability.gov/pdfs/guidelines.html> - 2)
- Jakob Nielsen, Usability 101: Introduction to Usability, August 25, 2003, (www.useit.com)
- Steve Krug, Don't Make Me Think, 2nd edition, 2006
- Deborah Schwartz, Policy and Management Issues Framework: Statewide Portal Project. (<http://www.library.ca.gov/crb/06/05/06-005.pdf>)
- Eric Schaffer. The Institutionalization of Usability, 2004
- Peter Morville. Ambient Findability, 2005
- Louis Rosenfeld and Peter Morville. Information Architecture for the World Wide, 2nd edition, 2002

*NOTE: These titles and other resources on usability are available online to state staff through the California State Library. Look for "Safari Tech Books Online" (under E-Books) on Electronic Resources for California State Government Employees at www.library.ca.gov/csl/csldatabases.cfm. For more information, contact the State Information and Reference Center at (916) 654-0261, Monday through Friday, 9:30 a.m. to 4:00 p.m, or email: cslsirc@library.ca.gov.

Document History

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